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A  
T R E A T I S E  
ON THE  
SCARLATINA ANGINOSA,  
AND  
D Y S E N T E R Y ;  
AND  
S K E T C H E S  
ON  
*F E B R I L E S P A S M,*  
AS PRODUCED BY PLOGISTON.

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By ISRAEL ALLEN, M. D.

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1796.

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1280-1814

1814-1815

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1816-1817

TO THE

FRIENDLY PATRONAGE

OF

PHYSICIANS

THE FOLLOWING

OBSERVATIONS

ARE

Inscribed,

BY THEIR

MOST OBEDIENT

AND

HUMBLE SERVANT,

THE AUTHOR.

STERLING, October 1, 1796.

1870

1871

1872

1873

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1884

1885





A  
TREATISE  
ON THE  
Scarlatina Anginosa, &c.

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The general Type of the  
Fever.

TO characterize this epidemic by any particular symptom or set of symptoms, would be difficult. In giving the history of the disease, it will be necessary to mark the different degrees of febrile heat, and general type; and notice the variety of symptoms under particular cases.

In general, the presence of an inflammatory diathesis prevailed, but in various degrees, Excess

## Excess of febrile Heat.

IN cases of high excitement the patient is accompanied with many disagreeable sensations ; as head and back ache, throat inflamed and very painful, the tonsils tumefied, eyes inflamed, skin hot and itching to excess, nausea and vomiting ; the whole vascular system greatly excited, and the action of the extreme vessels very much increased : all these symptoms, united, form an assemblage uncommonly irritating and distressing.

These symptoms generally terminated at the completion of five days ; but if the disease anticipated a crisis only, the symptoms on the sixth would go on increasing ; but showing signs of crisis ; as a partial moistness on the skin, turbid urine, &c. and a final solution and relaxation appeared evident at the completion of the seventh ; at which period, the body became sweaty and moist, the urine precipitated a sediment, the tongue cleaned partially, and there was a more free discharge of canker from the throat, than had happened before

before. A lively delirium, quick pulse, hoarseness, an apparent atony, vomiting, sometimes purging, large discharge from the tonsils, were all attending symptoms ; but a perfect crisis constantly happened to those under this form of disease. The patient being freed from the violence of excitement, generally remained several days, very sleepy, feeble and deranged.

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## Defect of febrile Heat.

AS it is of importance in practice to distinguish the different degrees of febrile heat ; so in this diathesis it is necessary to mark the different stages of disease. Two periods are peculiarly dangerous, viz. the time of accession and recession of eruption. The danger at the beginning of disease evidently arises from want of action or mobility in the extreme vessels, and an obstinate spasm ; thereby occasioning local determinations to the brain and lungs ; this defect of reaction, and the danger, are greatly increased by the coincidence

evidence of cold, being received just at the time of accession, and a constitution favoring febrile spasms and spasmodic affections. The patient, very soon after being seized, becomes stupid, has a small and frequent pulse, obscure heat, sometimes vomits and purges insensibly, the eye fixed and glassy, the respiration soon becomes anxious and difficult, the tonsils mildly inflamed, some small inflammatory pimples in the throat, and imperfect eruption on the neck and stomach. With these alarming symptoms, the patient generally dies within the first twenty four hours, unless means are employed sufficient to excite and increase the mobility on, and determination to, the surface of the body. Many livid spots have appeared on those who have died in this stage of disease ; which some have thought were from a broken and dissolved state of the blood ; but I apprehend the appearance was from an inflammatory diathesis, determined to the skin, and violent febrile spasm.

Patients that have been relieved under  
symptoms

symptoms like the preceeding, and a final solution of disease, obtained, have (on taking cold) been seized with a secondary fever, and blood taken away has constantly appeared fizy and inflammatory, which it would not in so short a period, had it been broken and dissolved before.

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## Recession and imperfect Crisis.

THE period next to be noticed is that which follows the recession of the eruption. This period, in this form of the disease, the practitioner ought to keep in view; and is between the fifth and eighth day. In this stage and form, prognostic is dangerous. The patient has no unfavorable symptom, the fauces are moderately inflamed, the heat equal and mild—no derangement of the intellectual functions; finally, every symptom promises safety to those unacquainted with the complaint; when, unexpectedly, the patient becomes

comes insensible, the eyes inflamed, an acrimonious saliva discharges from the mouth, an acrid mucus from the nose, very eroding to the skin, and a sanies from the ears; the face, neck, hands, and feet bloated, the tonsillar and parotid glands tumid; the action of the heart and arteries feeble; the natural warmth, or vital energy perceptibly diminishing, and every morbid symptom tending to the fatal period; which, few cases excepted, is rarely more than forty hours from the change of symptoms. All reasoning respecting this sudden change of symptoms, would be hypothetical; but, we may however conjecture, that the cause, or particular state of atmosphere, which originates the fever, is highly active and stimulant; and by reason of violent stricture, or exposure to cold air, determines to the sensorious part of the brain. And, considering the superficies is an expansion of blood vessels and nerves, and greatly inflamed and irritated, may it not be also supposed that the plexus choroides, and pia mater, are inflamed early in the disease; and in the second stage, the



the medullary substance is inflamed and intirely disorganized? Local inflammations of membranous parts, we are assured, are not attended with high excitement. Whether the change arises from the cause suggested, or from an absorption of acrimony from the glands, is not known.

I have never observed, even in one instance, any local determination under the first form of disease, where the crisis was complete, except what was common to both, a foreness and swelling of the joints. But when the tongue retained its cast, the surface continued dry, and other symptoms of doubtful crisis, till after the seventh day, a recession followed, and a particular determination was evident. In one instance, it evidently determined to the brain, and produced symptoms of an hydrocephelus internus, as might plainly be traced, by the dilated pupil and other symptoms corresponding. In another instance, to the intestines, followed by dysenteric discharges. And in a third to the lungs and

and bronchia with symptoms of synanche trachealis. A fourth determination, and which is common in an obscure crisis, is to the parotid glands, which continue a long time indurated, after the ulcerations on the tonsils, uvula, and mouth are abated and healed.

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## Secondary Fever.

ANOTHER characteristic in this disease, is an aptitude remaining to febrile heat. Cold air, wet cloths, rooms, linen or shoes, quickly renew the inflammatory diathesis. Those in a state of convalescence, must cautiously avoid any exposure for ten or twelve days at least, after the crisis. Wine, spirits or tonic medicines, must be administered with caution. The fever that follows is very inflammatory, and renews all the preceeding symptoms, except the ulceration of the throat. A ~~boy~~ who had the complaint, with the usual symptoms, except the eruption, grew tired of confinement,



finement, escaped to the barn ; the following evening, a delirium and febrile paroxysms, great heat and efflorescence succeeded ; the tonsils inflamed, greatly, but without canker. The fever raged five days, when a favorable crisis appeared.

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## General Remarks.

SOME peculiarities characterize this disease, which are not observed in any other eruptive disorder. I could never be satisfied whether it was contagious or not. At one time, when it entered a family, one only would have it ; at another, two ; at another, all. At one time, it appeared to follow in a week or less, after being exposed ; and at another, not till after four or five ; and many had it without ever being in any way near an infected person. The efflorescence on the skin is not a certain symptom of disease ; neither is canker ; and many had neither an eruption, canker,

B
ker,

ker, nor fever ; a sore throat only ; at the same time and same family of which three died ; a circumstance, that it was the same disorder. In one instance it appeared local ; as no other symptom happened, but inflamed tonsils, which continued seven days, attended with a large effusion of saliva, the quantity of three pints or more in twenty four hours ; a circumstance, likewise, that it was not a common synanche ; four others of the same family, the following week, were violently attacked with the disease. A free discharge from the throat was a sign of safety, and the reverse, when it could not be promoted. An absorption was succeeded with tumefaction in the glands, ulcerations in the nose and ears, an obscure heat and debility. I have never observed any general tendency to putrescency. The ulcers in the fauces were deep and very offensive, before the crisis ; especially, when the patient had been neglected or taken tonic medicines too freely. Cold and heat were equally to be avoided ; heat increased the restlessness, anxiety, and febrile irritation ;  
cold

cold gave a sensation equally unpleasant. Cold and hot drinks had the same effect as the temperature of air. Those with an excess of diathesis, parted with their hair and nails; those with less excitement, the scarf skin only. Those under the highest excitement were the most debilitated, and remained convalescents the longest. An absorption to the glands in many cases was more troublesome. Many, under a mild diathesis, had as perfect a crisis, which was as distinctly to be traced, as those under the highest.

From the 1st of March, 1795, to April 18, 1796, one hundred and fifty persons, mostly children, had the disease in this place; and eight of those died, viz. One on the 21st day, emaciated with constant heat, large ulcerations and abscesses in the inferior part of the throat, aphtheous mouth, and general acrimony of the fluids. Two on the 9th, from imperfect crisis, and an inflammatory determination to the brain. One in twenty four hours, from violent febrile stricture, on the  
surface,

surface, and a determination to the lungs and bronchia. One on the fifth, an infant, with spasms, and dyspnœa, at the recession of eruption. Two on the 7th, from cold, after an apparent crisis ; the natural and vital heat being repelled ; the contractile power of the fibres being feeble, a general atony and tumefaction succeeded. One by local affection of fever exerted on the intestines.

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## Indications.

ALL that medical aid can do, is to obviate the morbid tendencies, or local determinations to important and vital parts. Heat, the only known stimulus in nature, when an excess is received into the system, by the lungs, from the atmosphere, or by absorption, or in contagious principles in the air, or be detained by cold, and an excess is accumulated, increases the contractility of the muscular fibres of the heart, and the surface of the body.

The

The increased action of the heart increases the velocity of the fluids, and while the resistance on the surface continues, a febrile effort commences, and continues, till the action of the heart overcomes the resistance, and an exhalation of heated fluids takes place; or the resistance called reaction repels the heated fluids to the brain or some vital part, and destroys its mechanism.

The indications are two, viz. Remove the cause, excess of stimuli, and obviate the fatal tendencies. The peculiar tendency of eruptive fevers is to the surface. The scarlatina exerts its influence on the tender surface of the fauces. Many writers have supposed the particular determination and inflammation there, producing ulcerations, were the most dangerous symptoms in the disorder. Debilitating the vessels of the throat, while the spasm continues, by poultices externally applied, hot fumigations, and relaxing gargarisms, augment the suffusion and inflammation there

there. The indication to obviate the morbid tendency, is to repel the heat and check the violent action of the inflamed vessels by astringents, early in the disease; and after the parts are greatly swelled, stimulants to obviate loss of tone in the vessels.

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## Method of Cure.

AN emetic in the beginning generally relieved the patient of many painful sensations, as nausea, pain in the throat, headache, &c. Immediately after the operation, I ordered the fauces to be gargled, with a solution of sugar of lead, alternating every three hours with a solution of salt, water and vinegar; at the same time directed the external parts of the throat to be bathed with the same solutions. The determination to the surface, the next indication, was promoted by internal and external means. A febrifuge medicine, composed of nitre camphire and golden sulphur  
of



of antimony, was given every three hours, alternated, saline julep, and tincture of opium, sufficient to take off an excess of irritation. The bowels regulated with glauber salts and castor oil, or rhubarb and salt of wormwood; a gentle operation only, being necessary. Bathing the legs in warm water, poultices to the feet and blisters favored the indication.—As children cannot use the gargarisms, the nurse ought to touch the tonsils and other inflamed parts with a soft swab or armed probe; wet with the astringent solutions. This course, varying with the symptoms and indications, I continued till the fifth or sixth day, at which period the inflammation was at its acme. At this time I changed the course, ordered a strong solution of borax as a gargarism, in brandy and water, and gave spirit of nitre, camphire and opium, as a febrifuge. After the crisis, which may be expected on the seventh, I have found a solution of white vitriol in rosewater the best astringent to prevent a return of ulcerations and aphula. Much caution and attention is

now

now necessary. The nurse must constantly assist the patient, if a child, with the probe, to disengage and discharge the canker; and particularly to press the tongue down, and examine, and disengage that which lies lodged on the tonsils. Some patients have not swallowed during the night, from inattention of the watcher. I have been obliged to pass a large armed probe between the glands before the patient found relief. The teeth and lips are to be frequently washed; and the throat likewise, before eating or drinking. At this period of disease the surface of the mouth and throat is tender, and dry; the patient can only whisper. A spoonful of some oily medicine, after waking from sleep, is very useful indeed. In this stage, the bowels are to be opened, if necessary, and restrained if a diarrhoea be urgent. The patient can neither bear evacuations nor tonics. A middle course is to be pursued, gently restoring and nourishing. Here, I would remark, that I have never observed any essential benefit, from any vegetable astringent, nor from allum, gum kino, nor  
from



from marine acid. I would also inform my readers that I made trial of Dr. SIMS' medicine, recommended by Dr. BULFINCH, which is the vitriolic acid diluted with water, and think it the best astringent in use. The few cases which happened after I received his publication, do not allow me to recommend from much experience, but have no doubt of its efficacy in this and other inflammations of the throat. After I was acquainted with the medicine, I employed it with success; it is astringent, stimulant, and antiphlogistic; the last property perhaps is only local, and the effect of the astringent.

The Dr. prepares in the following form: take oil of vitriol from one to two hundred drops, pro re nata, spirit of lavender eight drops, simple water eight ounces, united together in a phial, which he directs to be given, a tea spoonful or more, every three hours, and used as a gargle till the fifth or sixth day. The Dr. cautions against using it too freely, lest a stricture be induced on the lungs. The  
same

same caution is necessary in giving bark, while the arid skin and inflammation continue. This he depended on for cure except necessary laxatives to regulate the bowels.

The indications in an obstinate spasm at the accession, are to increase action and mobility. The method, which has afforded the most certain relief is either partial or general fomentations; that which is the most convenient, is soaking cloths or flannel blankets in hot water, salt and water, or vinegar and spirit; and which must be applied over the whole surface, and often repeated, till action and reaction are increased. Internal stimulants and antispasmodics must be vigorously employed—as volatiles, musk, ether, camphire, infusions of saffron and snakeroot, &c. which may be given warm and often repeated. This course if taken early, before the respiration becomes difficult and laborious, has often restored reason, and recalled to action the vital principle, which had been almost suspended

pended. As soon as the determination to the superficies is restored, the fever assumes its usual type.

A large blister to the back part of the head is very beneficial, if applied at an early period. Emetics are hurtful, not being sufficient to overcome the spasm; the nervous influence and mobility of the system being greatly decreased. Cathartics increase the symptoms. Bleeding, performed on a young man, by a physician greatly embarrassed with the situation of his patient, gave no relief; he died in thirty six hours.

Friction with moist hot cloths has been found very salutary.

I would here beg leave to introduce an idea, whether some preparation of tobacco might not be useful in this stage and form of the disease, as well as in other spasmodic complaints. A respectable physician from Canada\* informed me he had used an extract of tobacco

\* Dr. RAYMOND.

tobacco for the cure of colic, which had not failed in one instance in thirty years practice, if exhibited early in the complaint. The following recipe is his form of preparing it. Take tobacco, fenna, and anise seed, of each two ounces, boil them in water to the consistence of molasses, add cathartic species, sufficient to bring it to consistence for pills; as scammony, coloquintida, aloes, and rheubarb, equal parts. Two pills of common size were generally sufficient to ease the pain, and operate as a gentle and safe purge, in an hour, or at least in the usual period. It certainly has singular effects on the system; it discovers sedative effects without affecting the sensorium, or destroying the peristaltic motion of the intestines. Dr. MAY, also, in an inaugural dissertation, has demonstrated from experience its antispasmodic power, in tetanus, when opium failed. Patients in this form and stage of disease, are so delirious and comatose, I have never ventured to give opium; but on the Brunonian plan it certainly would be proper. Tobacco, having the antispas-

modic

modic power, without the sedative, has the preference in many cases, and I have no doubt of its being useful in febrile spasm.

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## Indications and Method in imperfect Crisis.

WHEN the crisis is postponed, to the end of the 7th day, and no relaxation is obtained, with little discharge from the glands, skin dry, mouth aphtheous, any prognostic must be hazardous. A remission, however, takes place about the sixth day : but if no sweat appear, nor other marks of solution, we may prepare for difficulty. If low delirium, stupor and mental derangements, come on, we may suspect an absorption of acrimonious fluid has determined to the brain ; and in every instance I have seen it has been fatal, whether to the brain, intestines or pleura. In one case only, where the crisis was put off till the tenth, no local inflammation followed.

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From

From the seventh to the tenth I gave tonic and stimulant medicines, as bark and snake-root, sirup, balsam, and spirit of lavender, spirit and water more freely than before ; suspecting that debility was the cause of the fever's being protracted. On the evening of the 10th, applied two large blisters in addition to others, and gave an emetic ; a general sweat and usual signs of crisis were obtained. A tumefaction, in the cellular substance, appeared in about a week, which I apprehended was the effect of the tonics ; but it might be from absorption. I gave an emetic and cathartic, and an infusion of tincture of snakeroot, Guaiacum, saffron, and Peruvian bark ; which obviated the atony and swelling in a week or thereabouts.

One determination from imperfect crisis remains to be mentioned, which is to the parotid glands. These cases, before the period of recession, appear under the slightest form of the disease ; every symptom favorable, and the patient unwilling to be confined. An enlargement



enlargement of the glands, obscure heat, ulcerous throat, gums, lips and tongue; pulse quick, countenance pale, general state enfeebled. These cases are commonly attended with worms. The indications are many; as, emetics, cathartics, blisters, sudorifics, friction, and tonics after the heat has subsided. The heat continues a fortnight or more, and the debility for a long time. The real and essential indication is to invigorate the system; but I have not found it possible, while the febrile and foul habit continued.

All cases of this description terminated favorably at last.

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## Indications in a Secondary Fever.

ANY exposure to cold air, damp rooms, &c. exposes the patient, to an inflammatory fever. The

The course to be pursued is antiphlogistic, as, bleeding, puking, purging, blistering, &c. which may be employed, according to the age and particular state of the patient. A crisis is generally obtained about the fifth day.

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## Observations on the Dyf- entery.

SINCE the commencement of the year, the following disorders have been epidemical in this place, viz, the chicken pox, the whooping cough, the scarlatina anginosa, and the dysentery. The latter of these began in august, after four weeks of very hot, and dry weather.

The cause of this fever is a precipitation of the fixed air, from an excess of phlogiston in the surrounding atmosphere.\* The heat being

\* The exhalations from dried brooks, &c. being water decomposed, and arising from putrifying animals and



being particularly exerted on the intestines, produces an increased exhalation, and discharge, and an immediate tendency to mortification, especially in young children.†

The symptoms at the accession are, headache, vomiting, thirst, alternations of heat and cold : these are followed with severe gripings and dysenteric discharges. In the economy of animal life there is a constant tendency to putrefaction, which is increased with the heat and moisture of the atmosphere. The principle of vitality which put the machinery in motion, and has influence in continuing life, in every inspiration, becomes, when increased to excess, the principle of dissolution. Every fever

*vegetables, are very noxious and produce the worst kind of dysentery.*

† *The abdominal viscera and muscles corrupt the soonest of all parts of the body after death, and the quick putrefaction here may reasonably be ascribed to the putrid steams of the feces.*

(HUNTER.)

fever is attended with danger, and those in particular, in which the heated perspiratory fluid is locally seated on a vital part. Those which arise from atmospheric heat and contagious exhalations, discover a rapid tendency to putrescency.

The cure of dysentery, being a local inflammation, and arising from heated and contagious air, must always be doubtful and uncertain.

The indications are to take off the spasm on the surface, and moderate the heat, irritation, and stricture on the intestines. For taking off the febrile stricture, electricity has been recommended and employed with success ; but as this cannot be always convenient, the surface may be relaxed, and the oscillatory motion of the nerves on the skin increased by friction and warm bathing, daily repeated, till the stricture on the surface and spasms of the bowels, give way.

At

At the accession, gentle emetics are much to be depended on, both in respect to the stomach and the febrile state.

Laxative purges, \* demulcents, and acescents are to be employed till the inflammatory symptoms subside. As a laxative, a solution of Glauber's salts, and tartar emetic may be useful ; or when that cannot be retained on the stomach, an infusion of rhubarb, English saffron, and gum Arabic ; or *sal rupellensis* ; being more agreeable, to some,  
and

\* I am informed by a practitioner in Pennsylvania, that the may-apple is a very valuable cathartic in dysentery and colic. It is a plant about two feet high, grows spontaneously in the woods in Pennsylvania, Newyork, on Mohawk river, and upper Canada. The leaves resemble those of coltsfoot, or wild grape ; the apple is of the size and color of a lemon, of an odorous smell and not unpleasant taste ; the root contains a large quantity of mucilage, and when boiled to an extract, becomes a gentle, but certain purgative, operating without giving pain or irritation. This plant I take to be the same that Dr. MORSE calls mallow-indian physic, (*Spiræa trifoliata*) page 172, edition of 1793. I hope to cultivate the plant in my garden the ensuing summer.

and equally useful ; with the addition of castor oil to either of the foregoing forms, if necessary. As a laxative, on those days the purging medicine is not employed, either ipecacuanha, waxed glass of antimony, or tobacco, may be given in small doses and at proper intervals ; the latter is very useful either in powder, or extract. As an antiseptic ; an infusion of columba or golden thread root ; \* the latter, I think, is to be preferred. To finish the course for the day, a dose of the baic tincture may be given at bed time, if the spasms, tenesmus and discharges are severe ; which is to be preceded by warm bathing and the application of a dry warm flannel to the bowels and stomach. The most useful demulcents, are gum Arabic, isinglass, and sweet elm bark ; † the latter of these, being put into cold water, becomes an exceeding agreeable demulcent, and gentle laxative. Allowing, in every stage all kinds of vegetables, and ripe fruits, which contain subacid or saccharine

\* *Nigella.*

† *Ulmus Americanus.*

charine qualities, as apples, pears, musk and water melons, &c. and even onions and cabbage, have been found safe and salutary. All cool and acescent drinks, as imperial, whey, buttermilk, cold water, apple water, barley water, brandy and water, &c. &c. The diet, chocolate, coffee, tea, milk, rice, &c. I have always observed children at the breast, bear the disease better than those who are weaned, which induced me to direct milk; and as many cannot bear it in its original state, cream, water and loaf sugar boiled, make a useful substitute.

In the second period of disease, after the inflammatory and putrescent symptoms are obviated, astringents, tonics, demulcents, and animal food are to be employed; and through every stage I have experienced great benefit from exercise in the open air every fair day; and for children, gestation on a horse or in a carriage, if it can be supported, is very salutary. I have seen children recovered, by exercise in the last stages of weakness; even after

ter aphthae \* and other marks of putrescency, had appeared.

Ventiducts may be kept open into the apartment of the sick during the night and day; frequently washing the sick with cold vinegar or spirit and water.

As a preventive to this distressing disease, I know of no one thing which would be so useful as cold bathing. Many children fall victims to the heat of summer, who might be saved by cool purges and bathing, especially those lately weaned, who are very liable to the complaint. And it is to be regretted there are so few baths in this country, convenient for adults—especially in seaport and other large towns, *where* the quantity of air is greatly diminished. Should health and pleasure appear objects sufficient to arrest public or private attention, it is hoped houses will be erected both elegant and useful; and foreigners

\* *Dr. SIMMS' medicine is a useful gargarism, and antiseptic in this stage of the disorder.*



eigners no longer complain of our inattention to an exercise so agreeable and healthful.

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## A Review of Practice.

THE pathology I have given of the Scarlatina Anginosa may appear to some very inaccurate; but not more so than the disease itself. It appeared in various characters; but I have attempted carefully to mark its varieties, and various tendencies—and as it discovered an inflammatory irritation, but in different degrees, I have partly adopted the antiphlogistic course. As the complaint was stationary thro the summer, and operated mostly in autumn and winter; I have found the bark and other tonics increase the heat and canker in the throat, and general stricture and dryness on the surface. What has been the type of the fever in the adjacent towns I have not been informed, only from common report. To prevent a violent effusion on the tonsils and contiguous parts by astringents, and ob-

D tain

tain a crisis as early as possible, have appeared the chief indications. In 1786, the Dyfentery followed the Scarlatina Anginosa, as an epidemic, and many perished. The disease in many cases was not under the control of medicine. In the present year it has appeared in the general character, and in a mild form, proving fatal but in few instances. The general method, as has been suggested, has been the most successful in its preceeding and present appearance.

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### An Apology.

THE acknowledged sentiment that the medical art has been improved by practical observations of physicians; and a compliance with the request of the Massachusetts Medical Society to practitioners in general, to make observations on epidemics in particular, will, I hope, be an apology for the foregoing observations.





## Medical Sketches, &c.

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### Heat the Principle of Animation, &c.

THAT principle which chymists and philosophers have demonstrated to exist in all bodies, is, doubtless, the only vivifying principle in the universe. This fluid has received various names according as it was combined with other elements, as electricity combined and existing in air, phlogiston, or inflammable matter in oil and other inflammable

ble bodies, fire, heat, &c. as an element or principle of matter.\*

We perceive this principle to act nearly alike on animal and vegetable bodies. It re-animates insects and other animal bodies, when life has been suspended through the influence of cold, and vegetation lives again on the return of heat. Vegetation cannot exist without the influence of the other known elements of matter, as earth, air, and water. In the animal economy without this all vivifying and supporting fluid, and a constant supply of food, containing a portion of *these*, he fails, sickens and dies. By the union of these the air becomes the principle of vitality, or the breath of life.

Salubrious or fixed air, we may suppose, is a compound, acting on our bodies by certain

*\* Chymists have demonstrated this principle of phlogiston to be a component part of all bodies, and only a secondary principle, and to distinguish it from pure, unmixed fire, call it fire fixed or compounded with other elements.*

tain laws we do not comprehend ; and is constantly received into the lungs and instantaneously decomposed, and those parts necessary for life are absorbed, and the remainder exhaled as useless and even deleterious.\*

The universal, or vitriolic acid, which philosophers have demonstrated to exist in the air, which is a saline or earthy substance, heat and water, are components of this animating fluid.

Its mode of supporting life we do not understand.

We

*\* It has been found by Dr. HALE, that a person in health destroys two gallons of air in two minutes and an half ; so as to render it unfit for respiration.*

(HALE'S Statical Essays.)

*Dr. PERCIVAL has discovered that air which animals have breathed is in all respects the same with air in which animals have putrefied. The original quantity is diminished in both cases, which is owing to the precipitation of the fixed air it contained.*

D2

We may suppose a certain proportion of each necessary to compose this fluid. And also this principle has influence in continuing the power of cohesion in animated bodies. The cause of putrefaction is an excess of heat, for bodies in a putrefactive fermentation have an increased action, heat and agitation, which decomposes the different elements and particles which compose the body.

The principle of phlogiston also exists in the various kinds of sustenance, in a fixed state, as in wine, oil, spices, and animal food, and in different degrees, as is evident from the strength obtained from animal, and the debility, from vegetable food.

This compound is not only the vital principle of life, it is also the nervous energy, the cause of all sensation and muscular motion.\*

“ Human

*\* Wine, spirits and opium, contain a large share of this inflammable principle and increase the mobility of the nervous power to a certain point, beyond that, confusion of ideas; carried farther, a disarrangement and disorganization of the brain.*

“ Human life,” says a late writer, \* “ is an aggregate of at least three ingredients, perception, intelligence, and vegetation ; and since man is declared to be a compound, the natural presumption is, that the life of this compound being is itself a compound. The mechanism of life, which is vegetative, is wholly of the body, and consists of a symmetry and sympathy of parts and a correspondence of motions, conducive by mechanical laws to the conservation of the whole.” The influence of air entering the pulmonary vessels, is mechanical, and when it is called the vital principle, refers to the mechanism of life, in that part which belongs to the body only. How far the vegetative life is influenced by heat and cold, I may now consider, as this only comes under the notice of the physician and physiologist.

Philosophers assure us that whatever are the properties of heat, those of cold are directly

\* *Bishop HORSLEY, before the Humane Society, 1789.*

ly opposite. Heat flows incessantly from the sun and is essentially fluid, and the principle of fluidity in other bodies. Cold is a privation of heat, its qualities being different; while this condenses, that dilates. These two opposite qualities seem to produce analogous effects when carried to a certain point; for cold condenses till after congelation, then like heat it expands the frozen substance.

Physiologists have assigned various operations or effects from the influence of cold—and when applied in certain states of the body becomes an astringent to the surface, contracts the exhaling vessels and retains the heat which ought to be carried off by perspiration. Various degrees have various operations according to former habits and particular states of the body at the time it is applied, &c.

The influence of heat is also various, operating according to its duration, intensity, and alternation with cold and moisture. Its excess like cold becomes an astringent; contracts

tracts the surface and retains the perspiratory fluid. It has been proved that a hot room gives a cold, sooner than one of lower temperature; a cold being only the retention or accumulation of heat in the system.\*

It has been observed that heat is the principal mover in the mechanism of life, the principle of vegetative and animal motion—but it is at the same time acknowledged that an excess deranges and mechanically destroys the organization of the system.†

The heat of the body may be increased to a certain degree without a fever's being present; but if carried beyond the point of evaporation, a febrile stricture takes place. In  
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\* *Dr. ALEXANDER has proved that a person may be too hot to sweat, and that there is a sweating point, and in any degree above or below, it cannot be obtained, till the heat is lowered by cold, or increased by heat.*

† *Animals, even those the most tenacious of life, and whose existence is found to depend the least on air, sooner expire in air made foul, than in vacuo.*

(LIND on fever.)



the vegetable economy, heat stops perspiration, equally as frost or cold.\* Heat applied to the body in any considerable degree, produces a febrile spasm, and a dangerous fever ensues; heat being received into the lungs and determined to the skin, inflames and irritates the nerves on the surface, and a stricture is induced.

A modern pathologist,† supposes the proximate cause of fever is spasm, and the remote causes are sedative or debilitating powers, &c. which acting on the primary organ, the brain, produce a diminished energy; which has influence on the heart and arteries, by weakening their force and action. This and the *vis medicatrix naturæ*;‡ produce spasm and fever. The hypothesis is not easy to be comprehended.

\* Plants sooner suffer and droop beneath the influence of noxious air, than in the want of this vivifying fluid.

(LIND on fever.)

† Dr. CULLEN.

‡ It is hard to comprehend this power in the system, unless it be reaction.

prehended. It is hard to conceive how motion and vigor can be increased, when their cause is diminished; or how a diminished influence can produce an increased action. The Doctor supposes the spasm &c. indirectly stimulate the heart and arteries, and thereby restore energy to the brain, which has influence in obviating the atony and spasm on the surface.

The influence of the nerves in the brain is continued by the constant supply of blood, of agreeable motion and temperature, and the blood flows consonantly to the energy the heart and the arteries receive from the nerves. Experience informs us that in almost every instance of debility, when the action of the heart is weak, the reaction is likewise; the resistance being in proportion to the distending force. In cases of debility an equal balance is observed between the action and reaction, and an equal distribution of blood to the exterior vessels. Every paroxysm of fever increases debility in the various functions,

tions, and at the crisis the weakness is greater than at any preceeding period in disease. On the whole the effect cannot cease while the cause remains; neither can the same power produce vigor and weakness.

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## An Hypothesis.

MAY not febrile spasm arise from *phlogistic* heat? an excess being accumulated in the system, may it not inflame and excite the origin of the nerves in the brain, and be immediately communicated to those on the surface? Heat, cold, and moisture, equally contract the diameters of the exhaling vessels, and imprison the perspiratory fluid, which being phlogisticated air,\* and highly stimulant, induces a febrile stricture.

This

*\* Heat, moisture, and stagnated air, and human effluvia, such as sweat and perspiratory matter from the skin and lungs, are the grand promoters of putrefaction.*

(WHITE on puerperal fevers.)

This stimulant fluid inflames and contracts the solids, and rarefies the fluids, stimulates the heart and arteries, which increases the heat and stricture on the surface, and the febrile motions commence.

Dr. RUSH\* writes, that in the late fever at Philadelphia, the pulse was increased nearly twenty strokes in a minute, in those who had not a fever. A presumption, that the cause was a phlogistic atmosphere or an excess of stimuli, which corresponding with a particular state of body, produced a febrile stricture. Another fact, favoring the supposition, is, that neither women, nor children, were so liable to the disease as men.

The lax fibre of the former, not being so easily constricted as the latter, by the heated atmosphere. And I may remark further, that if real weakness, or diminished force, strength, or tone of the nerves, was the cause, why  
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\* See his letter to Dr. ROGERS.

was the debilitating course, such as large and repeated bleedings and other evacuations, so necessary and salutary ? As he informs us he carried it to great excess before the corded pulse and other inflammatory symptoms could be obviated ; and at the same time omitted all kinds of tonic or stimulant medicines.

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## Febrile Symptoms.

THE first febrile influence, it has been supposed, is on the brain ; but from sympathy and a peculiar sensibility of the stomach, a perception, very unpleasant and disagreeable, is first noticed in that organ ; it arises from excess of stimuli in the system, and begins to operate while the spasm is forming.

The succeeding symptom is debility, which is a false perception ; the whole vascular system being in a state of febrile tension and spasm ; which state produces a sensation of

of cold, which is not real, but apparent only ; for the sufferer is under more than usual heat except at the extremities.\* The symptom following is increased heat ; and the paroxysm which ensues, is a mechanical effort of the heart and arteries, and the expansive force of the rarefied air and fluids ; and the febrile resistance on the surface ; which effort is continued till a distribution is made to the surface, and a partial relaxation is obtained, and a portion of heat carried off by exhalation.

Contagion is phlogistic air, arising from human or other putrifying bodies, being greatly concentrated, and joined with acrimonious  
salts

\* By several experiments made by Dr. HOME, in the cold and even shivering fit of an intermittent, it appeared that the heat of the patient, by FARENHEIT'S thermometer, was 104 degrees, whereas that of a person in health seldom exceeds 98.

*During the cold fit of an ague, the heat is considerably increased.*

(LIND'S Appendix.)

salts and oil of the putrifying substance ; which violently stimulate the nervous system, and if received into the system, produce febrile spasm. It may be supposed that air decomposed, or that has passed the lungs and bodies of animals, as that in jails, hospitals, &c. is not materially different from that arising from dried brooks and stagnant water ; the water, air, and acid, being separated, its salubrity and vivifying power is destroyed. The excitement, which this imprisoned and contagious fluid gives to the system, is very great—as anxiety, nausea, horror, cold, shivering, thirst, headache, delirium, and other preternatural irritations.

Its activity with certain states of heat, has, likewise, immediate morbid effects on the fluids, by decomposing and destroying the globular system of the blood. Its stimulant qualities destroy the affinity of the various elements in compound, and break the union or relation each bore to the other. The putrefactive state commences, and the elements assume their original state. The



The intermitting fever is different from all others, and may be considered as an aptitude or tendency to a febrile state. This fever, only, is under the control of medicine, and if neglected, discovers a tendency to a remitting or continued fever. An apparent crisis succeeds the paroxysm, as appears by the general relaxation and natural excretions from the surface. After a certain period or intermission of certain duration, according to the original type and tendency, the same phenomena are renewed.

In the foregoing sketches it is supposed, that animal life has, in some respects, an analogy with vegetative, and that the influence of heat and cold is analagous, that heat or phlogiston is the cause of spasm, when an excess is accumulated, and that this active principle decompounds the air, and other fluids. The hypothesis being admitted, still no new indications can be suggested, unless it should be, an admission of cold air and drink. These, it is acknowledged, are allowed by ev-

ery, practitioner of eminence; but I would ask with deference to those of more experience and information, whether cold bathing and air, &c. might not be as safe and useful, in some fevers of this climate, as in those of Jamaica? Which practice Dr. JACKSON strongly recommends, from much experience, both in the West-Indies and England. Nosologists have multiplied the names of fevers, designating according to the local determination, or prevailing symptom, as putred, yellow, nervous, &c. &c. yet we have reason to suppose the cause is essentially the same, but the tendency different.

I conclude by introducing an instance of the effect of cold in an inflammatory fever.— A person now living in this place was violently attacked with a pleurisy, and almost from the commencement became delirious; on the seventh day of disease, the watcher falling to sleep, the patient rose from bed and travelled into the garden adjoining the house; and being entangled with potatoe vines, fell down  
and

lay some time, at least, till he became very cold ; the watcher finding his patient gone ; after considerable search with a light discovered him as related, perfectly restored to reason—was assisted back to bed—soon became warm and slept easily. His fever and adventure terminated together.

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## A SUMMARY OF THE FOREGOING INDUCTIONS—WITH REMARKS.

THE vegetative life of man requires a constant supply of air of certain temperature, and which supports life by respiration and evaporation from the surface ; and that the cause of fever is an excess of this animating principle ; and febrile spasm is an effect of its exciting power ; and that this power or principle may be accumulated in the body from external cold, heat, or moisture, or be imbibed from contagious exhalations, arising from putrefying animals or vegetables ; which state never commences till the air is decomposed, and  
its

its salubrity destroyed, and that this heated fluid may be unequally distributed and determined, and produce all the various phenomena in fevers; if to the brain and nervous system, a nervous—to the intestines, putrid and dysenteric—to the biliary system and liver, bilious and yellow fever, &c. &c. This electric principle may be locally exerted on a particular part, and produce great pain and irritation as soon as the spasm is formed, and evaporation ceases—as in rheumatism, felons, &c. The hypothesis is farther supported by the use of metallic points, lately introduced by Dr. PERKINS, in curing local inflammations, &c. By these mineral conductors, the inflammable principle is attracted and carried off. Respectable characters have given testimony of their utility.—However, we may suppose the heat cannot be conducted out of the body in any considerable degree, without some evacuation of the fluids; as by perspiration, bleeding, purging, &c. but we have unequivocal proof that the application of cold destroys and overcomes its stimulant power, as in burns, &c. also

also in fever's being relieved without any visible evacuation—one instance in the memoirs of Baron TRENK, by drinking cold water. I have only to remark, that I have lately cured fevers, by warm bathing and cold drink, when the most celebrated febrifuges had failed.

P. S. As a farther illustration that febrile stricture is the effect of heated air accumulated in the system from accidental causes; I here subjoin a few cases from Dr. JACKSON's notes, on the use and safety of cold bathing.

“As the cold bathing, which I have so strongly recommended in the cure of fevers, has an exterior appearance of being a rash and hazardous remedy, I shall relate some cases which may enable the reader to judge more precisely of its real effects.

“The first hints I had of this practice were accidental, and arose from a conversation I had with the master of a vessel, in which I went passenger. As he was talking one day of the state of the fleet, he mentioned accidentally,

dentally, that some men were sent aboard his ship ill of fevers ; several of whom, jumped into the sea during the delirium which attended the paroxysms of disease. Some of them were drowned—but those who recovered from the waves, appeared to be greatly benefited by the ducking. I was resolved to bring it to the test of experiment, as soon as opportunity should offer. A poor sailor was the first whose situation seemed to justify such a trial. He had been ill two days ; the delirium ran high ; his eyes were red and inflamed ; his respiration was hurried ; he was anxious and restless in a high degree, whilst together with those marks of excitement, he was occasionally languid and disposed to faint. His skin being dirty furnished an ostensible excuse for trying this remedy. But it was previously thought proper to draw some blood from the arm ; which being done, some buckets of salt water were dashed on the shoulders. He was now laid in bed ; a copious sweat ensued ; succeeded by a distinct remission, and a total change in the nature of the symptoms.

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The success I met with in this instance was more than I had expected ; I was therefore encouraged to try the same mode of bathing in a person who came under my care some weeks after, and who had been ill of a fever six or seven days. This patient had been bled and blistered ;—emetics and cathartics had been likewise employed, and bark had been given in the usual manner, for the three last days. The fever however, had now in a great manner lost its type. The man was low and languid ; his eyes were dim ; his vision indistinct ; his pulse small and frequent, and, when the head was raised from the pillow, not to be felt. Though it did not appear that he could reasonably be expected to live long, I still wished to get him conveyed to the deck, that a trial might be made of the effect of cold bathing ; but the situation was so ticklish, that I felt some uneasiness in getting about it. At last he was lifted through the hatch way in a blanket, though I must confess that I was not without apprehensions that he might die under my hands. Some wine was  
then



then poured down his throat; and he was sprinkled with cold salt water as he lay upon the deck.

Appearing to be somewhat invigorated by this process, he was raised up very gently, and several buckets of the sea water were dashed about his head and shoulders. He was then laid in bed; the pulse soon became large and full. I left him in a copious sweat and was agreeably surprised next day to find him sitting on the deck, to which he had walked on his own feet.

Another instance, in which the effects of cold bathing were more decisive than in the former. A boy, aged fourteen, had been ill of a fever seven or eight days. Nothing had been omitted in point of treatment, which is usual to be done in similar cases. Bark and wine had been carried as far as could be serviceable, or even safe; yet death seemed to be approaching fast. The success of cold bathing, in some instances similar to the present, so far exceeded my expectation, that I was  
induced

induced to make trial of it, in the case before me, tho I was not without apprehensions that death might be the consequence of the attempt. The business, however was accomplished without accident; and next day the boy was able, not only to sit up in bed, but even to walk over the floor.

“After instances so unequivocal as the above, it would be superfluous to mention any others. I shall only add, that I have tried the remedy in various situations, always with safety, generally with astonishing success; so that I cannot forbear recommending it even at an early period, in fevers. It communicates tone and vigor to the powers of life, and diminishes irritability in a degree far superior to all other cordials or sedatives.

“The bathing was managed in the following manner: the water which was required to be of a refreshing degree of coolness, was dashed by means of a bucket on

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the head and shoulders. It was found, likewise that its good effects were heightened, in some cases, by previous bleeding, and by the previous use of warm bathing."

# ERRATA.

Page.	Line.	
11	12	For cast, read <i>coat</i> .
12	11	For convalescence, read <i>convalescence</i> .
12	17	For preceed, read <i>precede</i> .
13	18	For efflorescence, read <i>efflorescence</i> .
16	3	For dyspnoca, read <i>dyspnœa</i> .
19	2	After alternated, add <i>with</i> .
21	17	For eight, read <i>eighty</i> .
26	3	After sirup, add <i>off</i> .
26	14	For of tincture, read <i>or tincture</i> .
32	9	For columba, read <i>columbo</i> .
33	1	For mush, read <i>musk</i> .







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